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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/518,639	03/03/2000	Tatsuo Enami	VX002097	5836

7590 01/30/2002

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EXAMINER

ZAHN, JEFFREY N

ART UNIT

PAPER NUMBER

2828

DATE MAILED: 01/30/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/518,639

Applicant(s)

ENAMI ET AL.

Examiner

Jeffrey N Zahn

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Paul Ip
Paul Ip
Primary Examiner

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION***Acknowledgments/Summary***

The IDS filed by the Applicant on 25 May 2000 has been entered in the application file as Paper No. 4 and considered for purposes of this examination. In addition, the Preliminary Amendment filed by the Applicant on 03 March 2000 has been entered in the application file as Paper No. 6 and considered for purposes of this examination; accordingly, Claim 7 has been added.

Currently, Claims 1-7 are pending in this application. Claims 1-7 are rejected for the reasons discussed below.

Specification

The abstract of the disclosure is objected to because it contains more than 150 words. Correction is required. See MPEP § 608.01(b).

The disclosure is objected to because of the following informalities: the Examiner requests the following material that is cited within the specification to ensure proper understanding of the disclosure, prior art and claimed subject matter. These items are follows: 1) Japanese Patent Application Laid-open Publication No. 11-23709, cited on page 5; 2) Electronic Material, March 1995, pp. 107 to 111, cited on page 16; and 3) The Laser Society of Japan, RTM-98-36, pp. 29-34, cited on page 19.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 4-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "trace quantity" in Claim 4 is a relative term which renders the claim indefinite. The term "trace quantity" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. For purposes of this examination, a "trace quantity" is interpreted to mean less than 10% of the total gas mixture.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hofmann et al. (US 6014398) in view of Bedwell (US 5090020).

Hofmann et al. discloses an ArF excimer laser (abstract) which causes an electric discharge between discharging electrodes to excite a laser gas (implicit of excimer laser) and oscillates a narrow-banded laser light (abstract).

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Hofmann et al lacks a buffer gas contained in the laser gas mainly consisting of He. Bedwell teaches an ArF excimer laser that includes a laser gas mixture that contains 99% Helium as a buffer gas. It is well known in the art that He is an appropriate buffer gas for ArF Excimer lasers to facilitate the transfer of energy to the rare gas to enable lasing. Therefore, it would have been obvious to one of ordinary skill in the art of lasers at the time of the invention to combine Hofmann et al. and Bedwell to produce an ArF excimer laser.

Regarding Claim 2, Hofmann et al. discloses the addition of small quantities of Xenon gas to ArF lasers to improve energy dose control (abstract).

Regarding Claim 3, Hofmann et al. discloses that ArF excimer lasers are used as a scanning type exposure device (Fig. 1; see also col. 1, line 10 - col. 2, line 21) that performs exposure of a semiconductor chip on a wafer by moving the wafer while irradiating a pulsed laser light to each of plurality of irradiation regions smaller than an area of the semiconductor chip.

Regarding Claim 7, see arguments above regarding Claims 1-3.

Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hofmann et al. (US 6014398) in view of the Applicants Admitted Prior Art.

Hofmann et al. discloses an ultraviolet laser device for oscillating pulsed laser (abstract) by adding a trace quantity of xenon gas (abstract) to gas for ultraviolet laser introduced into a chamber and causing pulse oscillation in the chamber so as to excite the gas for ultraviolet laser to oscillate the pulsed laser (col. 2, lines 24-42).

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Th Applicant admits that the prior art includes an ultraviolet laser device comprising a xenon gas cylinder in which gas is sealed (page 5, lines 18-28), and an ultraviolet laser gas cylinder in which the gas for ultraviolet laser is sealed (page 5, lines 18-28) and an ultraviolet laser gas supply piping for connecting the ultraviolet laser gas cylinder and the chamber (page 5, lines 18-28). It is well known in the art that these claimed features are required to deliver gas to an excimer laser apparatus. Therefore, it would have been obvious to one of ordinary skill in the art to combine the disclosure of Hoffman et al. to include these claimed features.

Hofmann et al. (US 6014398) in view of the Applicants Admitted Prior Art lacks a "predetermined position of the ultraviolet laser gas supply piping and the xenon gas cylinder are connected by xenon gas piping." However, rearrangement of parts where the prior art discloses/teaches the claimed structure has been held to be unpatentable. In re Japikse, 181 F.2d 1019 (CCPA 1950). It is well known that connecting gas cylinders together external to a gas receiving apparatus such as a manifold or excimer laser chamber, minimizes the servicing requirements related to gas cylinder replacement and decreases the time required for these replacements.

Regarding Claims 5 and 6, rearrangement of parts where the prior art discloses/teaches the claimed structure has been held to be unpatentable. In re Japikse, 181 F.2d 1019 (CCPA 1950). It is well known that an ArF excimer laser requires connecting gas cylinders, which requires valves and piping to deliver the gas. In addition, the steps required to operate the claimed excimer laser are not given any

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patentable weight for purposes of the examination of these claims because these method steps do not add or limit any structure claimed.

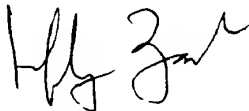
Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following prior art contains claimed features of the Applicant's invention. Hofmann et al. (US 6018537) and Besaucele et al. (US 6188710).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey N Zahn whose telephone number is 703-305-3443. The examiner can normally be reached on M-F: 8:30-5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on 703-308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.



Jeffrey Zahn
January 25, 2002



Paul Ip
Primary Examiner